Variability of Nitrogen Mineralization from Organic Matter in Agricultural Soils in the North of Colombia

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Abstract

Variation of Nitrogen mineralization (Nm) and its relationship to physicochemical factors in soils of an irrigation district in the North of Colombia was evaluated. Physicochemical parameters were measured in topsoil (0–30 cm) samples taken from 22 points in agricultural lands (10 in the dry season, 12 in the wet season). Nm was estimated from organic matter (OM) content. Soil parameters in the study area are suitable for crop development, although they present variations between the dry and wet season, where the soil pH varies of slightly acidic to neutral and the OM content decreases. Additionally, in the dry season there was a positive correlation with pH, OM and C/N ratio and, during wet season between OM, sand, clay and bulk density. In both seasons, a negative correlation between silt and Nm was common. Environmental and soil conditions in the study area are favourable for Nm because during the dry season the accumulation of OM is favoured. Understanding how physicochemical factors influence Nm is essential for agricultural activities and the development of sustainable ecosystem services.

Keywords

N transformation, physicochemical properties, physicochemical interactions